AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions of claims in the application.

Listing of Claims

1. ~~(currently amended) A method of processing a specimen comprising:~~

a first step of etching a specimen, which is a lamination layer formed on a substrate and includes at least one layer made of NiFe alloy or NiFeCo alloy, by gas plasma with a gas which contains chlorine at a temperature of the specimen below 200°C in an etching chamber;

a second step, which is performed immediately after said first step, of removing a residual chlorine component deposited on an exposed portion of said lamination layer during said first step, and eliminating debris deposited on a side wall thereof by rinsing the same using at least one liquid; and

a third step of drying the specimen immediately after the rinsing thereof by placing the specimen on a hot plate and by heating the specimen at a temperature below ~~230~~ 200 °C.

2. (previously submitted) A method of processing a specimen according to claim 1, wherein said second step is executed in continuous succession after said first step.

3. (previously submitted) A method of processing a specimen according to claim 1, wherein said gas plasma is generated using at least one of Cl_2, BCl_3, Ar and O_2 gases, or a combination thereof.

4. (twice amended) A method of processing a specimen according to claim 1, wherein said second step of liquid rinsing includes one or more than two of the following steps:

~~(A) pure water rinsing,~~

(B) alkaline liquid cleaning followed by water rinsing,

(C) acidic liquid cleaning followed by water rinsing,

(D) ~~fluoric~~ hydrofluoric acid and nitric acid cleaning followed by water rinsing,

(E) neutral detergent cleaning followed by water rinsing.

5. (original) A method of processing a specimen according to claims 1 or 2, wherein said third step of drying is executed at a temperature below 200°C.

6. (currently amended) A method of processing a specimen according to claim 1, wherein a temperature of ~~said~~ the liquid is controlled.

7. (currently amended) A method of processing a specimen according to claim 1, wherein said lamination layer includes, in addition to said NiFe or NiFeCo alloys, at least one or more of the following layers which are to be etched by gas plasma in ~~said process~~ the etching chamber:

(A) photo resist layer,

(B) alumina (Al203) layer,

(C) silicon oxide layer,

(D) Cu layer,

(E) Ta layer, and

(F) Cr layer.

8. (currently amended) A method of processing a specimen according to claim 1, ~~wherein said~~ the ~~substrate is a sintered substrate comprising Al_2O_3 and TiC, and on~~ ~~said~~ the substrate a layer of NiFe or NiFeCo alloy is formed, which is to be etched in ~~said process~~ the etching chamber.

9 - 11. (canceled)

12. (withdrawn) A method of manufacture of a magnetic head having an upper magnetic pole and a lower magnetic pole disposed opposite thereto and including a multiple layer resist etching thereof, comprising the steps of:

forming a lamination layer comprising an upper photo resist layer, a hard mask layer made of SiO_2 or alumina, a lower photo resist layer, and a seed layer made of NiFe or NiFeCo alloy;

plasma-etching said hard mask layer using said upper photo resist layer as its mask;

plasma-etching said lower photo resist layer to form a deep groove therein using a gas which contains chlorine with said hard mask used as its mask until said seed layer is exposed in the bottom of said deep groove;

removing a residual chlorine component deposited on an exposed surface of said seed layer by rinsing with a liquid;

drying after removal of said residual chlorine component; and

embedding NiFe alloy into said deep groove to connect with said seed layer

thereby forming said upper magnetic pole.

13. (currently amended) A method of manufacture of a magnetic head having an upper magnetic pole and a lower magnetic pole disposed opposite thereto and including a seed layer processing thereof, comprising the steps of:

forming a lamination layer comprising a seed layer made of NiFe or NiFeCo alloy, an upper magnetic pole made of NiFe alloy contacted to said seed layer, a gap layer made of an oxide such as alumina or silicon oxide in contact with said seed layer, and a shield layer made of NiFe alloy in contact with said gap layer;

plasma-etching said seed layer using a gas which contains chlorine with said upper magnetic pole used as its mask;

removing a residual chlorine component by liquid rinsing immediately after said plasma-etching step; and

drying the rinsed body ~~formed by the above steps~~ immediately after said removing step by heating at a temperature below ~~230~~ 200 °C after placing the same on a hot plate.

14. (currently amended) A method of manufacture of a magnetic head having an upper magnetic pole and a lower magnetic pole disposed opposite thereto and including a gap layer processing thereof, comprising the steps of:

forming a lamination layer comprising a seed layer made of NiFe or NiFeCo alloy, an upper magnetic pole made of NiFe alloy contacted to said seed layer, a gap layer made of an oxide film in contact with said seed layer, and a shield layer made of NiFe alloy in contact with said gap layer;

etching said seed layer;

etching said gap layer by plasma processing using a gas which contains chlorine or fluorine with said upper magnetic pole used as its mask;

removing a residual chlorine and/or fluorine components by liquid rinsing immediately after said gap layer etching step; and

drying the rinsed body formed by the above steps by heating at a temperature below ~~230~~ 200 °C after placing the same on a hot plate.

15. (currently amended) A method of manufacture of a magnetic head having an upper magnetic pole and a lower magnetic pole disposed opposite thereto and including a trim-processing thereof, comprising the steps of:

forming a lamination layer comprising a seed layer made of NiFe or NiFeCo alloy, an upper magnetic pole made of NiFe alloy contacted to said seed layer, a gap layer made of an oxide film in contact with said seed layer, and a shield layer made of NiFe alloy in contact with said gap layer;

etching said seed layer;

etching said gap layer;

trim-etching said shield layer using a gas which contains chlorine by plasma processing with said upper magnetic pole used as its mask;

removing a residual chlorine component by liquid rinsing immediately after said trim-etching step; and

drying the rinsed body ~~formed by the above steps~~ immediately after said removing step by heating at a temperature below ~~230~~ 200 °C after placing the same on a hot plate.

16. (currently amended) A method of manufacture of a magnetic head having an upper magnetic pole and a lower magnetic pole disposed opposite thereto, comprising the steps of:

forming a lamination layer comprising a seed layer made of NiFe or NiFeCo alloy, an upper magnetic pole made of NiFe alloy contacted to said seed layer, a gap layer made of an oxide film in contact with said seed layer, and a shield layer made of NiFe alloy in contact with said gap layer;

plasma-etching said seed layer, said gap layer and said shield layer consecutively with said upper magnetic pole used as a mask; and

applying a corrosion prevention treatment, which is performed immediately after said plasma-etching step, for removal of a residual chlorine component deposited on an etched surface thereof, including rinsing of the body to be treated and drying the same by heating at a temperature below ~~230~~ 200 °C after placing the same on a hot plate.

17. (previously presented) A method of manufacture of a magnetic head according to claim 16, wherein said gap layer is etched by gas plasma containing fluorine, said seed layer and said shield layer are etched by gas plasma containing chlorine and argon, and wherein said the rinsing in said corrosion prevention treatment is carried out liquid.

18. (currently amended) A method of manufacture of a magnetic head having an upper magnetic pole and a lower magnetic pole disposed opposite to each other,

comprising the steps of:

forming a lamination layer comprising a seed layer made of NiFe or NiFeCo alloy, an upper magnetic pole made of NiFe alloy contacted to said seed layer, a gap layer made of an oxide film in contact with said seed layer, and a shield layer made of NiFe alloy in contact with said gap layer;

plasma-etching said seed layer and said gap layer consecutively with said upper magnetic pole used as a mask; and ~~subsequently~~ immediately thereafter,

applying a corrosion prevention treatment for removal of a residual chlorine component deposited on an etched surface thereof, including rinsing of the body to be treated and drying the same by heating at a temperature below ~~230~~ 200 °C after placing the same on a hot plate.

19. (currently amended) A method of manufacture of a magnetic head having an upper magnetic pole and a lower magnetic pole disposed opposite to each other for manufacturing said upper magnetic pole thereof, comprising the steps of:

forming a lamination layer comprising an upper magnetic pole layer made of NiFe alloy, and a mask layer of a photo resist or an oxide film made of alumina or silicon oxide film which is laminated on said upper magnetic pole;

plasma etching said upper magnetic pole using said mask layer as its mask; and ~~then~~ immediately thereafter,

applying a corrosion prevention treatment for removal of a residual chlorine component deposited on an etched surface thereof, including rinsing of the body to be treated and drying the same by heating at a temperature below ~~230~~ 200 °C after placing the same on a hot plate.

20. (currently amended) A method of manufacture of a magnetic head having an upper magnetic pole and a lower magnetic pole disposed opposite to each other and including a process for manufacture of said upper magnetic pole thereof, comprising the steps of:

forming a lamination layer comprising, sequentially from above,

(A) a photo resist film,

(B) an oxide film layer made of alumina or silicon oxide,

(C) an upper magnetic pole layer made of NiFe alloy,

(D) a seed layer made of NiFeCo alloy for bonding said NiFe alloy,

(E) a gap layer made of an oxide film of alumina or silicon oxide, and

(F) a shield layer made of NiFe alloy;

carrying out the following plasma etching steps in continuous succession,

(Step 1) etching said oxide film layer using said mask layer as its mask,

(Step 2) etching said upper magnetic pole layer using said 5 oxide film layer as it mask,

(Step 3) etching said seed layer using said upper oxide film layer or said upper magnetic pole layer as its mask,

(Step 4) etching said gap layer using said upper oxide film layer and said upper magnetic pole layer as its mask, and

(Step 5) trim-etching said shield layer using said upper oxide film layer and said upper magnetic pole layer; and ~~after that~~ immediately thereafter,

applying a corrosion prevention treatment for removing a residual chlorine component deposited on an etched surface thereof, including rinsing of the body to

be treated and drying the same by heating at a temperature below ~~230~~ 200 °C after placing the same on a hot plate.

21. (currently amended) A method of manufacture of a magnetic head according to claim 20, comprising carrying out any steps of said plasma etching steps 1-5 in succession, then immediately thereafter applying said corrosion prevention treatment for removal of the residual chlorine component deposited on the etched surface thereof.

22. (currently amended) A method of manufacture of a magnetic head according to claim 20, comprising carrying out the rinsing/drying process ~~for~~ immediately thereafter each step of said plasma etching steps 1-5 for removing a residual chlorine component and a debris on a side wall, said rinsing/drying process being executed in continuous succession within a single unit.

23. (original) A method of manufacture of a magnetic head according to claim 20, wherein, in order for a selectivity ratio between each mask and its under-layer to become large during each plasma etching step, said etching process (1) is executed using a gas which contains mainly BCl_3 or fluorine, said etching processes (2) and (3) are executed using a gas which contains mainly chlorine, said etching process (4) is executed using a gas which contains mainly BCl_3 or fluorine, and said etching process (5) is executed using a gas which contains mainly chlorine, respectively.